Appendix C

NREL HOT WORK PERMIT CHECKLIST

NREL personnel and contractors shall comply with the most stringent regulations, standards, or guidelines available. Resources commonly used include the National Fire Protection Association (NFPA) 51B and 241; Occupational Safety and Health Administration (OSHA) 29 CFR 1926.352 & 29 CFR 1926.150; American National Standards Institute (ANSI) ANSI/UL 521 & ANSI Z49.1; and NREL Fire Protection Policy 4-8 & Occupational Safety and Health Policy 4-10

_____ **Hot Work Permit** - **A project walk through with the worker or contractor is required prior to issuing a Hot Work Permit.** The individual(s) performing the work are ultimately responsible for ensuring compliance with the requirements of this permit. The attached hot work permit will be completed prior to any work that produces sparks, flames, or has the potential to cause a fire. The hot work permit is valid for the specified task noted on the Hot Work Permit. Any variance from the original scope of hot work will require a new hot work permit. The permit may not exceed a one-year period.

_____ **Inspections** – The worker/permit holder shall inspect the work area a minimum of once per day to ensure compliance with permit requirements. Responsible NREL staff, to assure compliance with the Hot Work Permit, will perform periodic job site inspections. Inspectors have the authority to stop work if safe work practices are not being utilized or the scope of work defined in the Permit is being exceeded. The ES&H Office shall be immediately notified of any deficiencies.

_____ **Fire Detection** – Fire detection equipment shall be protected from false activation and damage. If components must be disabled or taken off line with the Fire Department, NREL BAE procedures will be utilized. Work shall not proceed until confirmation of fire alarm deactivation is verified with the NREL BAE or his appointed fire alarm technician. Impairments of fire detection systems shall be minimized.

_____ **Fire Suppression** – Fire suppression systems (e.g. fire sprinklers, dry chemical, foam deluge, etc.) shall be protected by noncombustible shielding or guarding to prevent inadvertent activation. Where installed, shielding and/or guarding shall be configured to minimize any disruptive influence related to system activation or coverage outside the immediate work area. The protective shielding shall be promptly removed upon completion of work. Fire suppression systems in the permit area shall be examined prior to the start of "hot work" to ensure that protective measures have been implemented.

_____ **Rangeland Fires** - If wind speeds are exceeding ten miles per hour, hot work will not be permitted outdoors. Vegetation and other combustibles must be removed or cut back to prevent ignition.

_____ **Traffic Control** - Barriers will be provided to assure traffic is prevented from exposure to hot work areas. Shields will be used to prevent exposure to sparks and flashes. A clear path of at least 44" must be maintained to all exits.

_____ **Cutting and Welding Controls** - The location of hot work will be determined by utilizing the following priority list:

1.) An area designed for hot work use such as welding shops.
2.) If work must be conducted on site, combustibles shall not located within thirty five feet of the work area.
3.) If work must be conducted on site and combustibles can not be removed from within thirty five feet of the work area, fire barriers such as screens or blankets will be used to protect combustibles.

_____ **Housekeeping** - Care shall be taken to assure the barriers will not allow sparks to penetrate the seams. Openings in walls, floors, or ducts will be protected from sparks. Acetylene and oxygen tanks will be protected from flame/sparks. Cutting or welding on pipes or metal in contact with combustible walls, roofs, ceilings, partitions, or any combustible material will not be undertaken if the work may cause ignition.

_____ **Hazardous Materials** - The contractor shall have a written Chemical Hazard Communication Program. Information on this program and MSDS will be readily available for all hazardous materials including welding rods and welding materials. Adequate ventilation will be provided for all hot work processes. Hot work will not be conducted within thirty five feet of combustible/flammable liquids or gases.

_____ **Personal Protection** - Personal protective equipment will be appropriate for the task. Eye protection will comply with ANSI Z87.1-1991. Long sleeved shirts, long pants with the pant legs outside of boots, leather gloves, and leather aprons will be used for welding and cutting operations. Additional controls are required if bulky clothing or protective suits are used that reduce the worker's ability to recognize hazards or to react to an emergency situation.

_____ **Equipment Safety** - Acetylene and oxygen tanks will be stored and changed in compliance with OSHA and NFPA requirements. Anti-flashback devices will be used on acetylene and oxygen tanks.

_____ **Fire protection** equipment will be sufficient for the hazards present. At a minimum, a 2A:20B:C rated fire extinguisher is required. The fire extinguisher shall be readily available in the immediate work area.

_____ **Fire Watch** – A fire watch shall be established to ensure the safety of workers and the protection of assets. The hot work area will be observed for thirty minutes (sixty minutes for roof work) after the completion of hot work. The individual assigned to this task will have fire extinguishing equipment readily/immediately available and be properly trained in the use of the equipment. Prior to leaving the site, the fire watcher will assure that no possibility of fire exist.

_____ **Other -**

** Permit requirements must be reviewed and verified on a daily basis prior to the start of work.